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SAFETY DIGEST

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UNITED STATES ARMY MATERIEL COMMAND
WASHINGTON 25, D.C.

September 1963

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Fabian Bachrach

FLARE

THE WHITE HOUSE
WASHINGTON

June 21, 1961

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SAFETY POLICY FOR THE FEDERAL SERVICE

In accord with our national concern for human life and the well being of all citizens, it is the policy of the Federal Government to safeguard from injury all those who work for it.

To carry out this policy, I charge the heads of Executive departments and agencies and, through them, their supervisory staffs to exert leadership in the establishment of vigorous accident prevention programs to achieve safe conditions of employment, and to promote safe practices by civilian and military personnel on and off duty. Safety programs of the Federal Government should also assure the fullest protection to all who visit our Federal buildings, installations, parks, forests, and other public areas. Similarly, these programs should extend to the safety of the public and Government driver alike, in their use of our public highways.

In order that these programs meet current needs and reflect the rapid changes in both technology and character of the working force, the Federal Government will cooperate with management, labor, State and local governments, and safety organizations in developing and applying modern safety standards.

The Government will take all appropriate means to foster the safety of all of those engaged directly or indirectly in the world-wide activities of the Government. To this end, I have directed the Secretary of Labor to provide assistance to all agencies through the Federal Safety Council and its field affiliates.

John F. Kennedy

Maj. Gen. Alden K. Sibley

Commanding General

Army Mobility Command

Today, as perhaps never before in our country's history, emphasis is being placed on scientific research. The entire free world is looking towards us to maintain our technological leadership. The U. S. Army Mobility Command was established to meet the Army's need for continued technological advancement which will provide true strategic and tactical mobility, thus insuring our capability to confront and defeat any type of military aggression.

To accomplish our mission, we must provide the soldier with equipment that is as safe in operation as it is effective on the battlefield. In addition, we must provide a safe working environment for all our employees. Reduced to basic principles, the integration of safe practices into all our work is essentially a matter of good business management. The cost of engineering safety factors into equipment or facilities after development and construction is prohibitively costly and cannot be tolerated.

Safety must be of primary concern to each employee of the Mobility Command Only in this way, through conscious effort by every employee to insure his own safety, as well as that of his fellow workers, will we, together, establish and maintain a successful safety program.

ALDEN K. SIBLEY
Major General, USA
Commanding

FOREWORD

The Safety Digest is an AMC Pamphlet prepared by the Safety Division, U. S. Army Materiel Command. Its purpose is to disseminate information which can materially influence and improve safety programs at all Command establishments.

Articles are included to supplement technical knowledge as well as practical knowledge gained through experience. They provide a basis for the further refinement of safety measures already incorporated in operating procedures and process layout. To achieve maximum effectiveness, the Safety Digest should be given widespread circulation at each AMC establishment.

Articles appearing in the Safety Digest are unclassified and are not copyrighted. They may be reproduced as desired in order to bring pertinent accident prevention information to the attention of all employees.

Unclassified material believed to be of interest or benefit to other establishments is welcomed for publication in the Safety Digest. Please send articles for review to: Commanding Officer, U. S. Army Materiel Command Field Safety Agency, Charlestown, Indiana. If possible, include pictures, charts, drawings, and illustrations that clarify and heighten interest in your presentation.

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The front cover shows a Chinook helicopter. The rear cover shows the U. S. Army Land Train. Both are Mobility Command items.

MOCOM SAFETY PHILOSOPHY

R. J. Shirock, Safety Engineer, MOCOM

The Safety Program at the U. S. Army Mobility Command is based on the three E's of Safety - Education, Engineering and Enforcement. However, in order to accomplish our mission, most of the emphasis has been placed on engineering. This is necessary since under the AMC concept of Shoot, Move and Communicate, MOCOM is primarily interested in MOVE. This includes the mobility equipment and supplies required to support the individual soldiers combat mission in all areas of war, whether on Land, Sea, or in the Air. Thus, the engineering consideration in the interest of safety at MOCOM goes far beyond the usual prerequisites of good layout, adequate illumination, ventilation and the guarding of mechanical equipment.

The magnitude and complexity of equipment involved require special considerations in regards to safety. The categories of equipment include, General and Special Wheeled and Tracked Vehicle (except combat type); all Army Rotary and Fixed Wing Aircraft, Aeronautical and Aerial Delivery equipment; such amphibians as the Larc and Barc and other floating equipment; Rail Motive Power and Rolling Stock and special Transportation Equipment; Barriers and Bridging; Night Vision Devices; Mine Clearing and Planting Equipment; Survey and Mapping Equipment, Camouflage and Prefabricated Buildings, Electrical Power and Generating Equipment; and Construction and Service Equipment.

It becomes readily apparent that safety must work very closely with the Project Managers, R & D, Procurement, Materiel Readiness, Quality Assurance and Commodity Office. Designing safety into a piece of equipment during the initial research and development stages is the answer to this phase of our accident prevention program.

We know that it is almost impossible to staff the various safety offices with specialized engineers in order to insure total safety review. As a result, it means that safety personnel must depend on and be prepared to give complete cooperation to the engineers assigned to a particular project. The Safety Engineer should be able to add his experience, know-how, and training to assist the designer or project engineer. He should be able to supply the details of special safety requirements.

The principle of industrial evolution is that each branch of science adds its special abilities to the other sciences to advance the overall technology. The Safety Engineer fits closely into this picture. In order to fit into the overall picture, the Safety Engineer must operate with a positive attitude. The attitude of "you can't do that" must be removed. New equipment is developed and standard equipment modified to fill a need. Therefore, we in the safety business, must insure that all possible safety devices are built into this equipment.

Much time and money are spent on "built-in" safety. We must insist that equipment be designed to protect the operator from his own errors or shortcomings, in as many ways as possible.

For the thrill seeker or the exhibitionist, taking chances is common. In the grim business of providing suitable equipment for the soldier, nothing should be left to chance. It is the policy of MOCOM to include safety from the time basic research evolves to final disposition of the finished product, to furnish the finest, safest equipment that human skills can produce and to provide a safe working environment for employees engaged in this production.

Barc 5 Amphibious Vehicle

U. S. Troops boarding Chinook Helicopter

HU-IA Iroquois

Truck, Cargo, I Ton Gama Goat

SOME TYPICAL "MOVE" EQUIPMENT FOR WHICH THE ARMY MOBILITY COMMAND HAS RESPONSIBILITY

Mobile Bridge

Truck, Utility, 1/4 Ton M151

RESEARCH SAFETY MEASURES
U. S. Army Transportation Research, MOCOM

U. S. Army Transportation Research Command (USATRECOM) conducts research to develop new and better products. Each research activity necessarily involves special safety measures. Recent projects representative of USATRECOM activities are the Shallow Draft Boat Project, the Fuel Drop Project and the Paraglider Project. As required safety measures for these activities varied widely, each project will be discussed separately.

The Shallow Draft Boat Project (See Photo #1) is an attempt to develop a boat capable of operation in swampy, weed-infested areas. A checklist of mandatory safety items is consulted prior to a test run and no boat is operated until all listed items are aboard. This list includes a life jacket for each person aboard, a fire extinguisher in operating condition, a bailer scoop, a whistle for emergencies, two paddles, safety lines from motor to boat hull, an anchor and anchor line and a first aid kit.

Other items of boat equipment are required to be aboard when it is felt necessity for their use may arise. These include a spare propeller, shear pins, a compass, fenders, extra line, bilge pump, insect repellent, flashlights, extra gasoline, extra spark plugs, chain and lock for locking boat, and chain and lock for locking motor to boat.

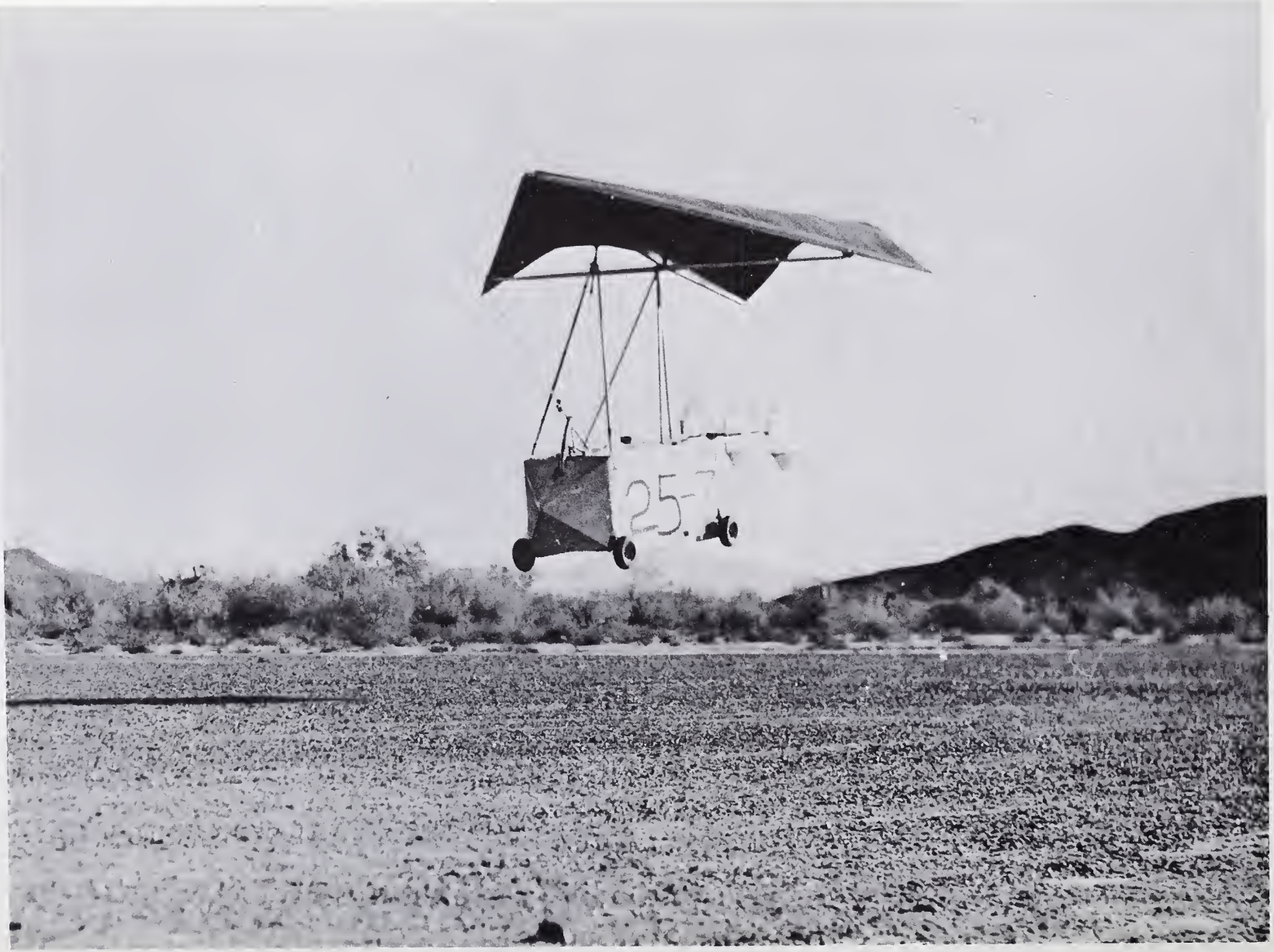
The Fuel Drop Tests were performed to determine the spread characteristics of solid fuel when it is dropped. Preliminary plans were to drop the fuel from a truck. It was then determined that explosion of the fuel upon impact could create a fire hazard involving the truck. A helicopter was used in the tests to minimize the fire hazard. Many safety precautions were taken in connection with this project because of the flammability and explosion potential of the fuel dropped. The target area was selected away from buildings to insure that a fire resulting from fuel drops would not spread. Easy access for fire trucks was also a factor in drop area selection. Both the Fire Marshal and a Safety Office representative inspected the area for suitability. Practice runs were made before actual testing, substituting water for the fuel to provide an estimate of spreading distance upon impact.

The fuel itself was carried in plastic bags tied securely and then placed in containers to prevent spillage of fuel in the aircraft. To release the fuel for the drop test the container was simply tilted. A fire truck equipped with foam dispensing equipment was on standby at all times during the tests. All personnel were prohibited from entering the impact area during testing.

The paraglider Project (See Photo #2) involves development of a cargo-carrying device. Many releases were installed for use in the event anything happened inadvertently during take-off or flight of the paraglider. There is a dual radio-controlled hook release which may be used by an operator in the towing helicopter or by an operator on the ground. In addition, there is a pilot-operated manual hook release. Hook releases are located both at the helicopter and at the glider. To insure reliability, all controls, hook releases, pitch, roll, flare, etc. are pre-flighted. During flight, the helicopter with main rotor blades rotating is kept at a minimum of 350 feet from the glider to prevent helicopter rotor wash from upsetting the glider by filling the glider wings and causing it to upset. A second helicopter with a contractor-operator aboard trails the glider in all flights to relate the glider position and flight characteristics to control station. All flights are performed over desert wasteland so that possible release of the glider will not endanger personnel or property.

Requirements for safety precautions during research activities are many and each project presents special problems, but it is a recognized fact that without proper safety measures the USATRECOM mission cannot be accomplished.

I. Shallow Draft Boat Project



2. Paraglider Project

AIR SUPPORTED TENTAGE

Ellwood W. Hagen and William A. Frank
U. S. Army Mobility Support Center, MOCOM

Early in 1958 the Corps of Engineers requested that the Quartermaster Corps develop a light weight, all-weather enclosure to protect the Nike-Hercules Missile. At this time the missile was mounted on the newly-developed, above-ground sites. This tentage was to be designed to protect the radar and missile from weather and to decrease down time for maintenance and repair, by furnishing a shelter for personnel in inclement weather.

Air-supported tentage was already in use at this time for such conventional needs as covering for outdoor swimming pools, storage and other commercial uses. The first Army use was to protect the missile itself, with the radome development coming later. The shelters were to contain no rigid parts, such as metal door handles, hinges, wooden or metal poles or archways, which upon firing of the missile could become secondary missiles. This requirement could not be met with conventional Army tentage. The tent developed at that time by QM Research and Engineering Command at Natick, Massachusetts is called: Tent, Nike Hercules, air supported.

The U. S. Army Mobility Support Center, Columbus, Ohio, now supplies these missile support tents (See Photo #1). One tent is used to cover the Nike Hercules Missile on launch pads. A second tent under this concept is the Radome Tent, (See Photo #2) which is scheduled for use at missile sites in the northern sector of the United States.

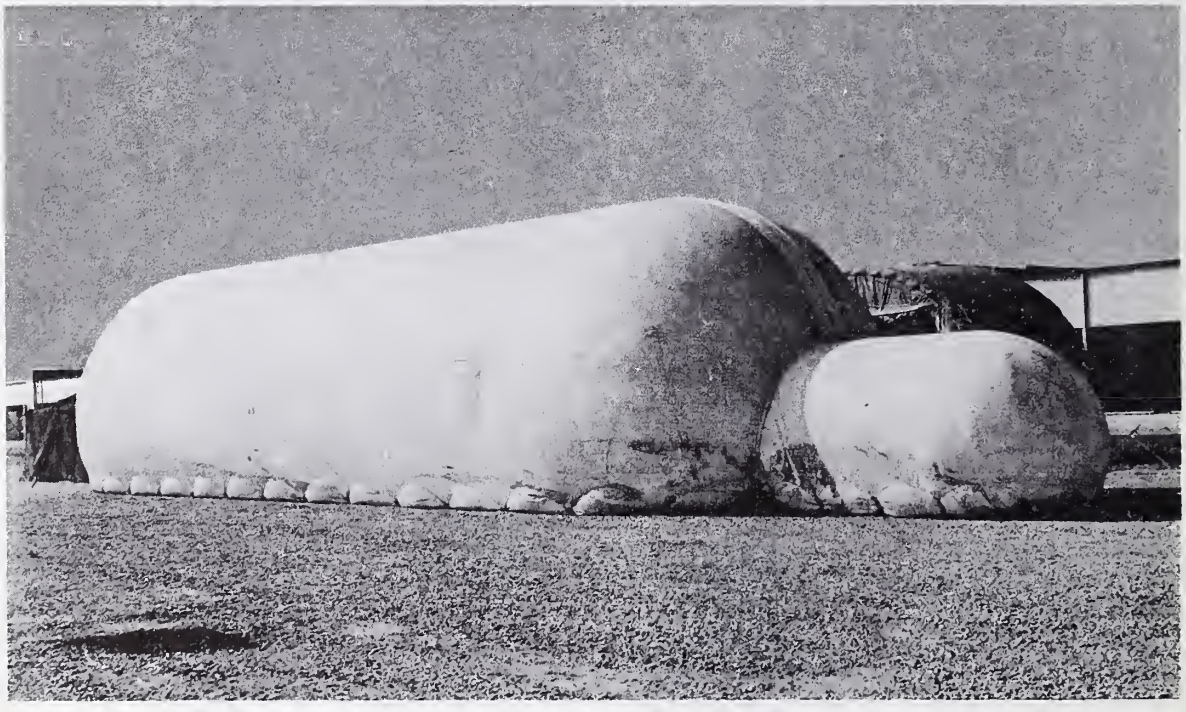
These balloon-type tents have certain aspects of operation which are different from canvas or conventional tents. A supply of low pressure air is blown into the air-supported covering by electrical-powered blowers. Air must be supplied on a continuous basis when the tents are erected and must be maintained at a pressure which will give stable and complete support. The tent may be removed from the equipment through the use of a quick-release device, and a huge zipper. This striking action causes the air pressure in the tent to blow the two halves off and clear of the equipment (See Photo #3).

Special personnel safety precautions must be observed in working with air-supported equipment of this kind and with the missile and radar equipment under tentage when operational. Stability of all components must be assured and precautions against short circuits require that the blower ground wire is well connected and the switch box, wiring and blower assemblies are securely mounted. Electrical heating apparatus must be firmly installed and all connections secured to guard against fire.

Ice and snow falling from the tent constitute a further hazard to personnel. The flexibility of the tent fabric causes it to shed ice without warning which may be injurious to anyone standing near the tent.

When erecting and installing radomes, safety belts are worn attached to life lines which run up in key slots on the towers. Prior to any activity on the antenna pad assemblies, crewmen, technical instructors and students must be certain that radar units are inoperative and that all personnel have been alerted to contemplated activities. Electrical power may not be turned on while maintenance, service, or erection work is being performed. Antenna unit must be locked in position during the placing of the radome fabric. All radomes are struck by pulling a release line from ground level. (See Photo #4). Personnel are not permitted on the radar pad or catwalk because of the danger when fabric is suddenly whipped back by release of pressure inside.

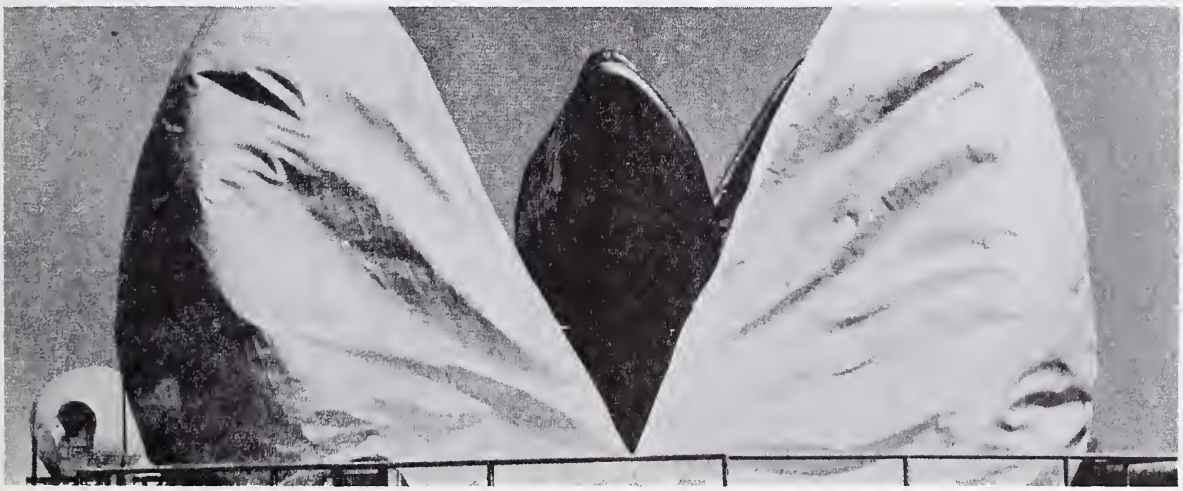
The use of air-supported tentage over missile and radar equipment, as noted before, provides protection against weather conditions. Fingers and bodies no longer get numb from working at heights nor does rain and sleep make working conditions unsafe. Personnel may work in comfort, even warmth to do a job efficiently and rapidly reducing operational downtime on equipment.



I. Missile Tent in Place

2. Radome Inflated to cover radar

3. Missile Cover being struck with a pull on the release line



4. Striking a Radome Air Supported tent

NEW METHOD OF COVERING CABLE SPLICE SAVES HANDS

Mr. C. H. Nowakowski, General Trades,
Post Engineer Division, Detroit Arsenal, MOCOM

A new method of covering hand splice has been developed by Mr. Richard Perry and Mr. Glen Laplue of General Trades Section, Post Engineer Division, Detroit Arsenal.

The old method was to cover the hand splice cable with wire, lead, or tape. These methods were not successful, and the covering or tape soon sore out exposing the ends of wires in the hand splice, causing a number of hand injuries.

The application of a copper sleeve over the hand splice of the cable has been in use for over a year, and has eliminated hand injuries. This sleeve can also be used for identification of the cables by stamping a number on them, which corresponds to the number on the monthly inspection card.

The size of the tubing used to make the sleeves varies with the size of the cable. For example, for the 1/4" cable, the copper tubing would be 1/4id" x 2", for a 1 1/4" cable, the copper tubing would be 1 1/4id" x 6". The tubing should be long enough to cover the entire hand splice.

A jig and fixture for making the sleeve is shown in Fig. 1.

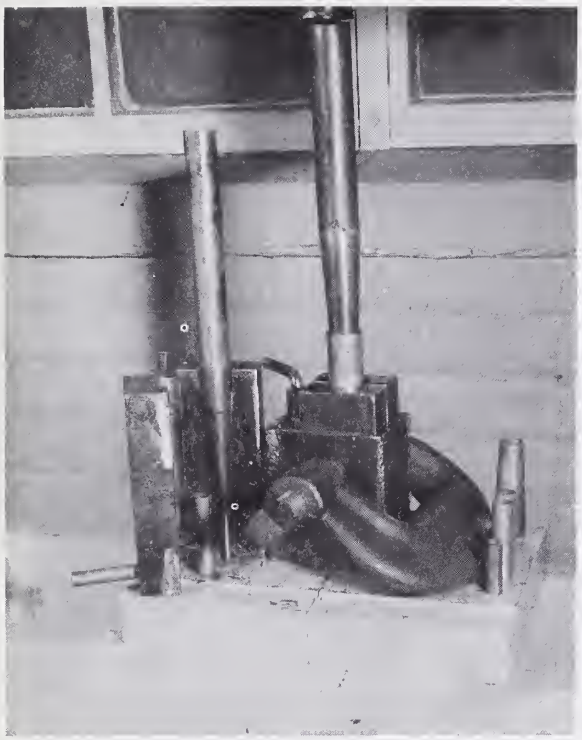
The sleeve is slipped on the cable before making the splice. Cosmoline is applied as shown in Fig. 2, so that the sleeve will slide into place with a minimum amount of pull.

The sleeve is placed in the fixture as shown in Fig 2, and pulled in place with a "come-along."

Fig 3, shows completed cables.

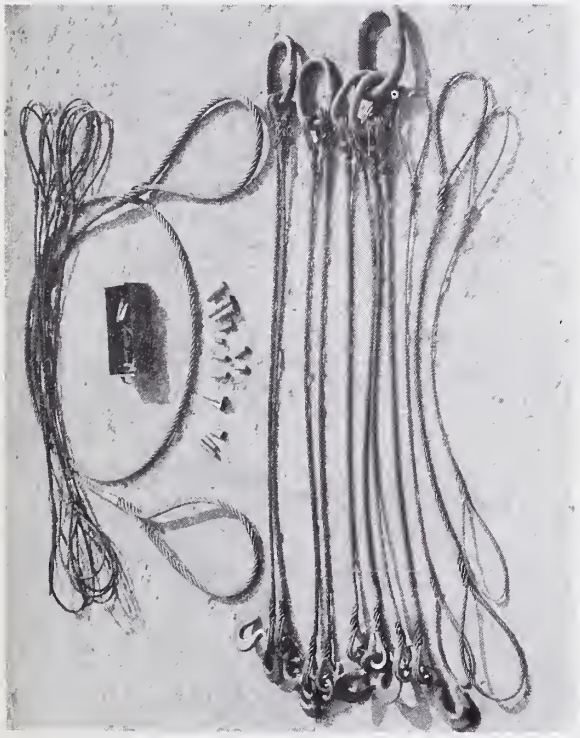
Fig 4, is a comparison of the new and old type of covering.

After the sleeve has been pulled into place, a center punch should be used to dent the sleeve and to form the sleeve around the strands. The punch should be used on each side of the strand.



I. JIG and Fixture for Making Sleeve

Applying Sleeve to Sling



Completed Cables

Comparision of New and Old Type of Covering

REMOVING FLAMMABLE VAPORS AND LIQUIDS FROM CONTAINERS

Malvin K. Wentzel, Tracked Vehicle Branch,
Maintenance Division, ATAC, Detroit Arsenal, MOCOM

For years the military services and industry have been cleaning and purging tanks containing flammable liquids and vapors by the time-honored and time-consuming method of steam cleaning, water rinsing, CO_2 purging, and aeration.

Maintenance men, as well as safety officers, are dismayed whenever it becomes necessary to repair tanks that one time contained flammable and explosive vapors. Upmost precautions are taken to prevent the possibility of setting off an explosion or an inferno. Many times a careless workman has attempted to cut the top off of a gasoline drum with a torch with disastrous results.

In order to prevent fuel tank repair accidents, extensive safety precautions are taken; explosion meters are used to determine whether a repair or cutting operation can be done safely after the tank is "cleaned", and invariably the steam cleaning and water flushing must be repeated.

Detroit Arsenal has located and has been using a commercial product that will positively do away with the hazards connected with flammable and explosive vapors. It has been demonstrated that this product will make a 20 gallon gasoline tank safe for open flame welding in about 30 minutes; a saving of 2 1/2 hours of time. (EDITORS NOTE: The name of the product and further details may be obtained from ATAC, Detroit Arsenal).

This material has been used successfully at the Detroit Arsenal for over 4 years in preparing fuel tanks for welding operations. It is an emulsifiable solvent combination, with the following properties:

SPECIFIC GRAVITY	1.456 @20°C.
DENSITY	12.13 lbs. per gal.
FLAMMABILITY	Non-Flammable
TOXICITY RATING	200 P.P.M. (M.A.C.)
CORROSIVENESS	Non-Corrosive to Metals

The product is both dependable and versatile. It will emulsify gasoline, diesel fuel, or any hydro carbon base liquid, thereby eliminating flammable vapors hazards.

When we think of a need for a purging agent, the first thing that comes to mind is gasoline tanks. But many other parts and assemblies require purging before they are repaired: pipe lines, pump housings, distribution manifolds, and reaction vessels, are among these. In preparing these items for repair, one important thing is to assure that purging is done safely, and that the material used to rid the equipment of flammable or explosive fumes is not, in itself, dangerous to use. Any product of this type should be submitted to local medical and safety officers to ascertain the toxic hazards of the material. However, every time a tank or component, which once contained flammable or explosive material, needs to be repaired, some very specific safety precautions must be taken.

Personnel engaged in the purging operation are required to follow these few simple safety rules to safeguard their own lives, and those of nearby workers, and to prevent damage to capital equipment:

1. Do not begin the operation during an electrical storm or when one is threatening.

2. Do not wear wool, nylon, silk, rayon or other static electricity generating clothing.

3. Wear only clean cotton clothing, without metal buttons or fastenings.

4. Remove all contents from pockets because they might create a spark.

5. Use cotton waste for cleaning purposes. Other materials may generate static electricity and produce a spark.

PURGING OPERATION

1. Statically ground the item or assembly by attaching a wire to a protruding bolt or bracket from which the paint has been scraped, and connecting the loose end to a water pipe or some other grounded object. (Be positive the object is grounded).

2. Completely drain the assembly, tank, piping, pumps, meters, filters and segregators as applicable.

3. Remove all accessory items such as gages and floats in which explosive or combustible liquid or vapor might be trapped.

4. Have the safety officer or fire department take a combustible vapor test reading.

5. Close or seal all drains.

6. Fill tne container with cold water and let it overflow for 5 minutes. This will get rid of any excess flammable liquids because they will normally come to the top and overflow. But, here again, we must exercise caution so the flammable liquid is not dumped in an exposed drain pit.

7. Drain completely.

8. Close or seal all drains again.

9. The product should be used as directed by the manufacturer.

10. Fill with cold water. DO NOT OVERFLOW.

11. Insert an air line into the container and agitate the solution with 3 to 5 psi of air for 5 minutes, continually moving the air line, assuring that baffle areas are agitated thoroughly. If the container is small, it may be agitated by shaking.

12. Remove the air line and drain the solution.

13. Seal all openings again.

14. Fill the container with cold water and overflow for five minutes.

15. Drain the container completely.

16. Check the container with the tester to assure a negative reading.

Now the container is ready for welding; change of materials and/or storage. You can proceed with confidence if the 16 preceding precautions were taken.

The next issue of importance is the effect of the purging agent on the materials of which the tanks or containers are made. The agent should have no adverse or swelling action on any type of container. Some products may cause a swelling of rubber-lined containers when used. However, the product used by Detroit Arsenal will not adversely affect rubber if it is used according to directions (4 ounces to each 10 gallon capacity).

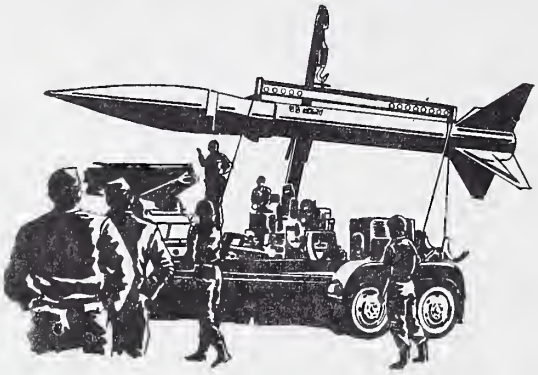
The product is equally effective in flushing fuel spillage down the sewer. Water type, air pressurized fire extinguishers are filled with a solution of 4 parts of the product to 1 part of water. Invert the fire extinguisher to mix the solution and direct the extinguisher hose toward the perimeter of the spillage. Continue playing the water on the spilled fuel in ever decreasing circles until all of the spillage has been covered. Explosive and flammable liquids are then purged by directing a forceful stream of water on the purged area. The resulting wash can be flushed into the sewer drain with complete safety and assurance that an explosion will not occur.

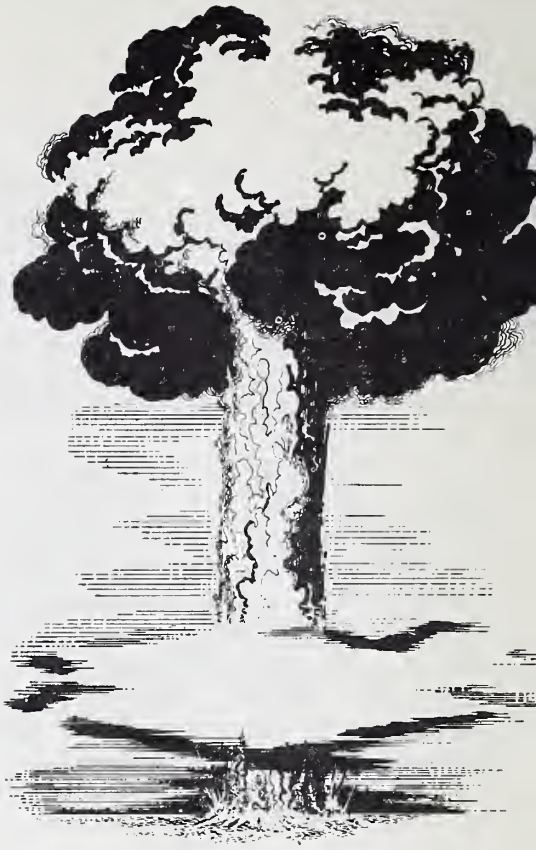
NATIONAL SAFETY COUNCIL SAFETY AWARDS

Congratulations are offered the personnel of Tooele Army Depot for winning a NSC Award of Honor for operating 3,726,341 man-hours without a disabling injury from 10 October 1962 to 26 April 1963.

The U. S. Army Oversea Supply Agency, Fort Mason, California also has accumulated a fine no-disabling injury record. Personnel of that organization operated 1,130,860 man-hours without a disabling injury from 13 September 1962 to 6 March 1963. The National Safety Council Award of Merit has been forwarded to the Agency.

EXPLOSIVES SAFETY





SMC REPORTS SOME EXPLOSIVES DISCREPANCIES

How many times have you heard the old expression "to err is human?"

We've all heard that expression used many times during the past years, and it was only one of the numerous excuses used to alibi for a mistake we may have made.

A review of explosives safety inspection reports reveals that "to err is human" was a contributing factor to some of the discrepancies reported.

Everyone associated with explosives operations should appreciate the hazards that are present. There is no excuse for not being aware of these hazards. The people involved should have been trained, instructed, advised and re-instructed in every phase of the particular operations they perform. However, the inspection reports indicate there are still some inexcusable discrepancies being noted. Let us review the three types of discrepancies reported most often:

The most prevalent discrepancy reported was that "the operation was not being performed in accordance with the instructions and methods set forth in the standing operating procedure."

We should all know by this time that no deviation is permitted from this procedure (the SOP) without the specific approval of the Commanding Officer or his designated representative

It should be very apparent to everyone that no inspector will or should accept the alibi that, "I was, or we were, told to do it this way." Any change in operating procedures permitting a deviation, must be in writing, and made an addendum to the posted copy of the procedure.

To knowingly violate a Standing Operating Procedure or to permit a violation, jeopardizes not only those willing to take a risk, but also everyone else directly associated with the operation. In addition, government property and equipment are exposed to potential damage and/or destruction. It is one of the basic responsibilities of the supervisor to require adherence to the procedure (the SOP), and a statement that, "I didn't know he was, or they were doing it that way," is no relief from responsibility. The supervisor's job requires that he must know what is going on. In work dealing with explosives, this knowledge is of paramount importance.

The second most prevalent discrepancy was "inadequate standing operating procedures." What constitutes an inadequate operating procedure?

In simple terms, it means not meeting the minimum requirements for the operations being performed. Some examples are, lack of procedures for disposition and/or storage of rejects generated during an operation, no explosive limits posted at a packing operation, and the instructions contained in the SOP did not clearly spell out each operation performed during a series of successive operations. To keep SOP's up-to-date, and to incorporate required changes, periodic review of all SOP's is required. Inadequacies should become apparent at that time.

The third most prevalent discrepancy reported was that "the posted standing operating procedure was for an operation other than the one being performed."

This discrepancy reflects several things. They are, lack of planning, inadequate supervision and operator failure, Any one of the above could result in an unforeseen occurrence. Be sure that your people are using SOP's and that each SOP being used applies to the operation being performed.

There were other types of discrepancies contained in the inspection reports. Discrepancies involved explosives handling, quantity-distance, additional operations not mentioned in the SOP, and personnel protection.

Everyone who has anything to do with ammunition or explosives should remember at least one thing - have respect for what you are doing and working with. If you lose that respect, even if only momentarily, the result might be something you least expect. Don't let it happen to you!

FLUORESCENT BALLAST FIRES AND VIOLENT FAILURES

The Problem

The ballast in most common type fluorescent light fixtures operating under normal conditions should have a useful life expectancy of approximately twelve years when properly installed and maintained. However, when abnormal temperatures or current overloads occur without built-in protection against such conditions, fire or explosions can and have resulted.

In an accident which was reported, heat from a short circuit inside the ballast caused the volatile compound in the capacitor to vaporize and to explode. A loud noise accompanied the explosion, and the fixture, guard and reflector fell to the floor.

The normal fusing in branch lighting circuits alone will not protect against overheating of the ballast under a number of conditions, e.g., incorrect voltage supply, excessive current, lamp rectification, short circuiting of the ballast, improper fixture application, and inadequate lamp maintenance.

One source reports that "ballasts normally operate at coil temperatures of 90-100° C. and are built with Class A insulation which is designed for a maximum Underwriters" Laboratories temperature limit of 105° C." As reported from one source, the following abnormal conditions will cause some ballasts to exceed this limit and result in premature failure or destruction:

a. One lamp out causes some ballasts to operate at temperatures of 120° C. to 130° C.

b. Lamp rectification usually begins shortly after half of the lamp life and increases in intensity until the expected life span of the lamp is reached. This condition can cause coil temperatures to reach 180° C.

c. Improper installation of fixtures can raise operating temperature from a few degrees above normal to 150° C.

d. Lack of sufficient heat dissipation from the ballast and fixture can cause the operating temperature to reach 150° C.

When the cause of overheating is external, such as lamp failure or improper installation, the condition can be corrected and the ballast will resume normal operation for its full life expectancy, provided the overheating is arrested before the ballast is damaged.

Overheated ballasts generally do not result in fires but the black compound in which the ballast elements are potted will frequently melt and drop onto furniture, clothing, etc., creating only a nuisance. The ballast, however, although still functioning will be seriously damaged, since on the average, insulation life is cut in half for every 10° C. increase in temperature over the U/L maximum limit of 105° C.

The Solution

On November 13, 1962, GSA Order (PBS 5855.1) was issued to establish "A standard ballast for use in operating all fluorescent lamps of 40 watts or more." This order requires inclusion of the following in all specifications, purchase orders, or other procurement actions involving the installation or purchase of ballasts for new installations or for replacement purposes:

> "All ballasts operating fluorescent lamps of 40 watts or more shall be protected against overheating by a built-in, thermally-actuated, automatic-reclosing device sensitive to both winding temperatures and current. This device will prevent winding temperatures from exceeding 120° C. Peak temperatures in the first few operating cycles may exceed the 120°. The protector must allow the winding temperatures to reach a minimum of 105° C. under normal conditions in a 40° C. ambient without opening the circuit to the primary winding and after opening shall reclose at a case temperature of 85° C."

This GSA Order further requires that:

> "A program shall be instituted for systematically replacing rapid-start ballasts in existing installations, with the thermally protected rapid-start ballasts (described above) as follows:
>
> "Ballasts which have been in operation for more than 10 years.
>
> "All remaining preheat ballasts regardless of age."

Division of Operational Safety
U. S. Atomic Energy Commission
Washington 25, D. C.

A NEAR FATALITY

Recently an electrician was revamping the night lights in Building 32 by using the electric overhead bridge crane. In the process of moving the crane into location the employee's sweater became caught in the rotating driver shaft of the crane causing his clothes to be ripped off his entire body resulting in minor contusion and abrasions.

In wearing everyday work clothing, care must be used to see that they do not, in themselves, create additional hazards, Loose clothing should not be worn about revolving or reciprocating machinery.

Watertown Arsenal News

CURRENT EVENTS

HE SAVED A RAG AND LOST A FINGER

A line maintenance mechanic was checking the alignment of the punch core rods of a Stokes Press. He asked the operator to start the press when he noticed a small amount of loose explosives on the press. The mechanic checked the vacuum and then began to wipe the machine with a small rag. The rag caught on a punch and as he attempted to free the rag, the punch came down on his finger. The middle phalange of his right index finger was amputated.

The SOP states "that prior to operation the electric motor switch on the Stokes Press shall be locked out, and the operator will retain the key. A line maintenance man designated by the line superintendent, will rotate the press by hand one cycle, observe the punches for freeness of movement, and visually inspect the tooling for defects."

The maintenance mechanic had read but did not follow this procedure. Therefore, he was given a written reprimand.

THE TRUCK STOPPED - HE DIDN'T

After transporting freight to a commercial wharf area, truck driver was returning a 5-ton truck with a 12-ton trailer, and the two laborers who helped unload the freight to the installation. Driver stopped the truck at the gate of the installation to permit the laborers to pick up their passes. When the driver started the vehicle, the rear-back wheel of the trailer hit a fireplug guard post, and unbalanced one of the laborers causing him to fall off the trailer and fracture his left ankle.

It is apparent that truck driver misjudged the trailer clearance. All truck drivers were re-instructed to use extra care while driving large vehicles in heavily-congested areas.

In order to prevent the recurrence of similar type accidents, special attention of all drivers will be called to paragraph 15, AR 385-55, which states that personnel on trailer trucks must be properly seated.

WILDWEST HOTSHOT

Injured EM was in a wildwest demonstration of a reenactment of the shootout of the OK Corral, Tombstone, Arizona during the Armed Forces Day Celebration. In his attempt to shoot rapidly (which was his role in the show) he pulled the hammer of a single action .45 caliber revolver back only half way instead of full cock and pulled the trigger. No fire resulted. He then grabbed the barrel with his left hand in order to fire and overcome the loss of time already experienced. He pulled the hammer to full cock and pulled the trigger at the same time before removing his left hand. The resultant fire from the end of the barrel caused third degree burns on palm of his hand. The ammunition was blank cartridges loaded with black powder.

This accident was the result of haste in attempting to fire a weapon by a person with inadequate skill.

OFFICE PERSONNEL TOO, MUST BE PROTECTED AND EDUCATED TO SAFETY

William A. Frank, MOCOM

Safety in an office? Why you're as safe in an office as you would be in your own home!

If the above statement is true, office personnel face dangers each day equal to or greater than industrial workers. Statistics from the National Safety Council show deaths from accidents in the home for 1912 amounted to 35.7 percent of the total. This rose to 42.6 percent in 1962!

There are no figures on office accidents available but the above percentages on homes are significant. USA Mobility Support Center offices located at the Defense Construction Supply Center have had a very good record of safety over the past five years due mostly to an alert staff organized on a building and section warden basis. Each warden has adequate backing and assistance to inspect and to police safety and fire hazards.

Office personnel are prone to ask that they be shown the procedure which says they can't jump off a ramp or otherwise flaunt good safety practices. Patience and education can mitigate such attitudes in time.

Some practices which have been gleaned from reports and which could be dangerous in an office are listed below. Many were serious. All carried potential danger.

1. Open files and bookcases always are dangerous because people will bump into them.

2. Long-legged card files have been the source of a recent incident wherein 700 pounds of a wobbly file of cards missed falling on a woman by a fraction of an inch. She was lucky. The next one may be hit by the "Jackpot of Bad Luck".

3. Poor arrangement of furniture, waste baskets, chairs in aisles, unsafe (broken) furniture, panel dividers and storage in corridors are always a tripping threat and could be a nightmare of confusion in case of fire requiring hasty evacuation of a building.

4. Lack of proper storage facilities, poor use of such facilities, poor housekeeping, flammables such as typewriter cleaner, lighter fluids and insect repellant, in cabinets and desks are sure fire hazards.

5. Electrical equipment needs constant inspection for worn cords, overloaded circuits, fixtures, extensions hanging on wires or nails, overheated switch and breaker panels, relays, inadequate lighting, cords hanging from ceilings at a level where they can break glasses or noses, etc.

6. Tripping hazards are many. Here are just a few of them: Cords on floor, dirty floors as well as newly-waxed floors, loose tiles, door mats, stair treads, pop bottles on floors, displays so placed as to impede rapid evacuation, ice, lack of guard rails and that newly-hatched enemy of properly groomed women, spike heels.

7. The above examples are about half of the items culled from reports. Other items that should be mentioned are horseplay and lack of interest in fire drills. Horseplay can and has resulted in injury to personnel. Fire drills are used to find out how our organizations would function in case of a real catastrophy. Fire drills at U. S. Army Mobility Support Center are all surprise parties. Only the safety officer knows when the siren will scream. This puts an element of reality into the drill, but even this has its drawbacks. Too many people still believe that the siren blows just for fun.

Fire drills at U. S. Army Mobility Support Center are all surprise parties.

THE IMPORTANCE OF COORDINATION IN INDUSTRIAL MEDICAL AND SAFETY PROGRAMS

Requirements contained in the Ordnance Safety Manual and other applicable medical and safety directives and regulations, confirm the advantages and protection that can be obtained from the establishment and maintenance of properly planned and coordinated Industrial Medical and Safety Programs. The extent to which these programs are developed will depend largely upon the mission of the organization they are to serve, the variety and nature of the occupations, and the functional and environmental factors encountered in the various jobs. Some of the basic objectives that must be considered in developing practical and workable programs are:

To evaluate the physical and mental capacity of applicants against the demands of the job with a view to suitable placement.

To maintain and improve the health of employees.

To promote safe working practices and good health habits.

To provide safe and healthful working conditions.

To reduce the lost time which results from illness or injury.

Cooperation - The physician and the safety director must share many of the responsibilities for protecting the employee against risks of injury on the job and occupational diseases. To achieve the desired results, working agreements must be developed between the medical director, civilian personnel department, safety department and field operating officials. Cooperation between these segments is essential to the efficient operation of a sound and integrated program. These four segments share in a common goal: The placement of the employee in a job for which he is best qualified (fitted) and the continued assistance to the employee with whatever support is necessary for the best performance of his duties. In addition, to effectively handle cases involving questions of compensation for service-connected illness or injury, it is necessary to have collaboration between all four of the above mentioned segments.

The introduction of new processes and new materials with actual or potential health hazards has brought many new environmental health and hygiene problems to the medical and safety departments. To study and control "new" hazards, as well as to maintain control over "old" ones, the medical and safety services must have an organized plan for achieving a continuing inventory of potentially hazardous material in use, and for accomplishing periodic surveillance of environmental conditions.

Essentials of a coordinated program include:

A staff of qualified physicians, nurses, safety personnel and attendants adequate for the needs of the organization.

Availability of environmental hygiene services.

Adequate dispensary and hospital facilities.

Efficient care of occupational injuries and diseases.

Reasonable first-aid treatment for non-occupational injuries and illnesses while on the job.

Physical examinations (pre-placement and periodic).

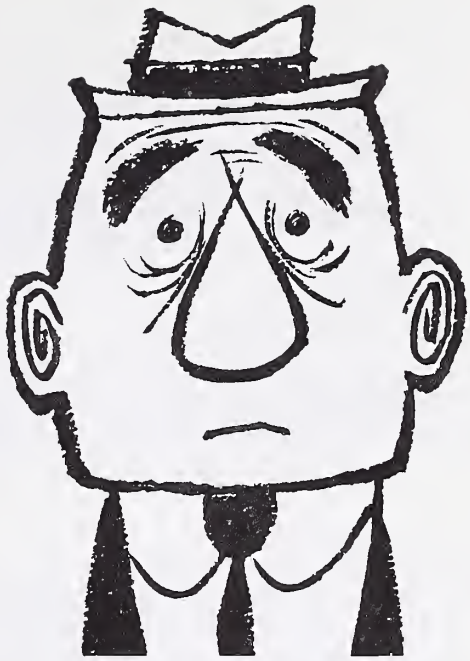
Adequate medical and safety records

Supervision of plant sanitation and hygiene.

Instructions of employees on personal health and safety.

In recent years many cases have occurred where the medical and safety programs have been instrumental in detecting and correcting environmental health and hygiene hazards and preventing the occurrence of diseases or injury with resultant loss of time from work. Experience has proven that well-planned and administered Industrial Medical and Safety Programs have been of great value in minimizing the environmental health problems, and in many cases, have protected the well being and life of employees.

DO YOU KNOW ?



Many of the following were based on questions received in regular correspondence. Questions are also included involving AMC requirements which have not been followed. The answers may be found on pages 31 and 32.

1. In making job safety analyses of operations involving varying degrees of hazard, which job should be analyzed first?

   Answer:

   Reference:

2. What is the specific safety action necessary prior to release of a weapon or ammunition to troops for operational use?

   Answer:

   Reference:

3. What are the AMC Safety Division distribution requirements for Safety Statements, Safety Releases and Safety Confirmations?

   Answer:

   Reference:

4. Time being a critical factor in the legality of an Atomic Energy Commission Byproduct Material License, how many days prior to the expiration date of a license must the application for renewal reach Army Material Command Headquarters?

   Answer:

   Reference:

5. What specific points of information are required in requesting approval for the use of radium?

   Answer:

   Reference:

6. May items of protective clothing and equipment required by standing operating procedures always be furnished without cost to civilian personnel?

   Answer:

   Reference:

7. What are the channels for forwarding nominations for enrollment in DA-sponsored safety courses at civilian institutions?

   Answer:

   Reference:

8. How often should band saw wheels be checked to detect and replace wheels with cracks or loose spokes?

   Answer:

   Reference:

9. What is the center to center distance between railroad tracks in a classification yard?

   Answer:

   Reference:

10. What is the maximum number of personnel allowed in the cab of a truck transporting explosives to burning or demolition grounds?

    Answer:

    Reference:

CHECK THAT POWER MOWER

Norman Smith, Safety Director
Black Hills Army Depot

Many articles have been published to promote safe operation of power mowers. This article brings to light a hidden hazard that might possibly exist in that new power mower you recently purchased.

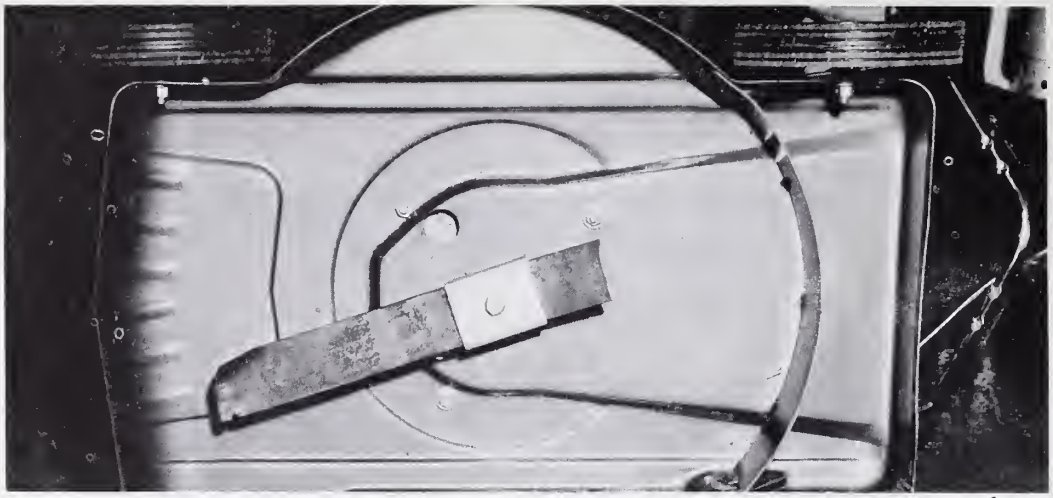
A mechanic was assigned the duties of servicing and checking two new 19" power mowers. The first mower was serviced and checked without incident. The second mower was serviced and checked for running.

When the mechanic started the mower engine for a check and the engine started running at slow speed, the outer six inches of one blade broke off. (See Photo #1) The broken section of blade was hurled into the steel housing, penetrating the 14 guage steel. The impact broke the motor mounting when the broken section was struck by the remaining section of the blade (See Photo #2).

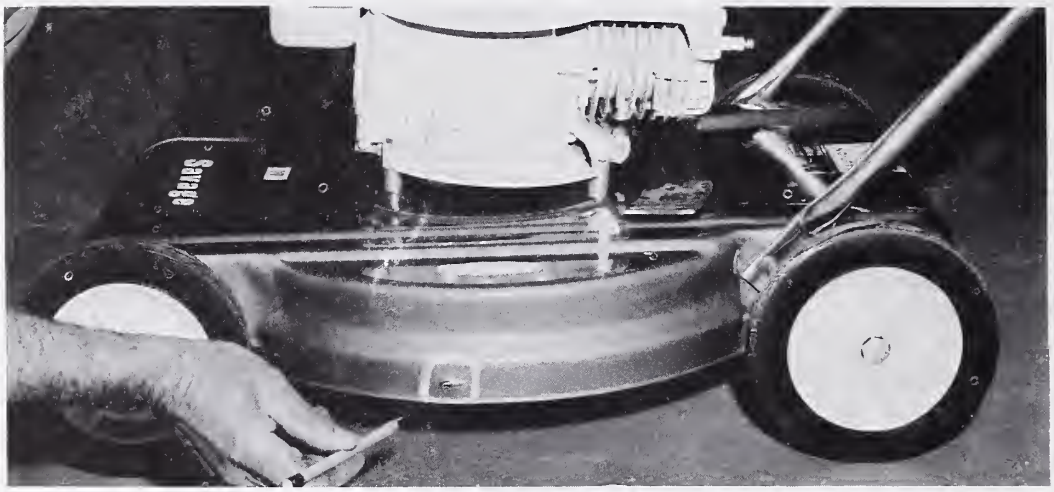
The mechanic immediately stopped the mower engine. Due to the low RPM and the immediate stopping of the engine, the broken section of the blade was not thrown from underneath the mower. Imagine what could have happened had the mower engine been running at full RPM. This mower was certified by the manufacturer to conform to ASA standards. This doesn't guarantee the components to be perfect. Without an X-ray inspection of each blade, flaws such as this could easily be present in any power mower.

To eliminate a potential accident, a metal barricade (See Photo #3) was fabricated for placement around each mower during the operating test. This will eliminate the possibility of a broken blade being propelled outside the barricade causing possible serious injury or damage to other property.

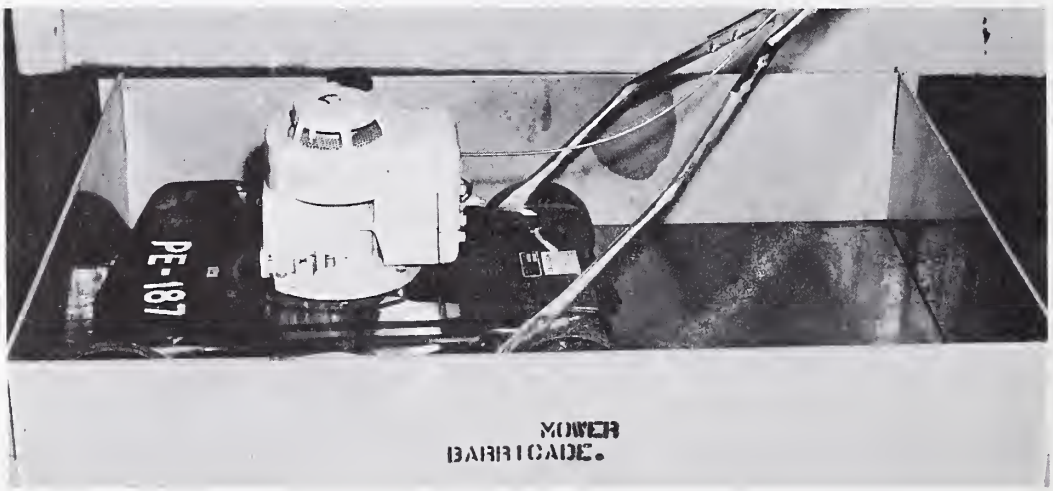
The barricade was constructed of 1/4 steel and will be used for the operational check of all rotary power mowers.



1. View of the under side of mower with section of blade in place



2. Mechanic points to hole made by broken blade.
Arrow points to broken engine mounting and broken blade.



3. View of power mower barricade

WELL DID YOU KNOW?

You may have known all the answers to the questions on pages 27 and 28. Check the answers below just to make sure - you may be surprised.

1. The analysis should be made of the most hazardous operation first, then expanded, as practical, to cover all operations.

   Reference: Paragraph 12e(1), AMCR 385-1

2. A Safety Confirmation as defined in paragraph 3c, AMCR 385-12 must be prepared

   Reference: Paragraph 3c, AMCR 385-12.

3. One copy forwarded to CG, AMC, ATTN: AMCAD-SN.

   Reference: Paragraph 5, AMCR 385-12.

4. 90 days.

   Reference: Paragraph 5c(4), AMCR 385-9

5. a. Facilities to be used

   b. Activity of radioactive material requested

   c. Name and qualifications of individual responsible for their direct use and/or application

   d. The purpose for which the isotopes are to be used

   e. The instruments to be used

   f. Health protection

   g. Monitoring provisions

   Reference: AR 40-580

6. Not always. Such items will be furnished without cost to civilian personnel if they are a type normally furnished to persons engaged in similar work by prudently managed private or governmental facilities.

   Reference: Paragraph 2c, AR 385-32 and 385-11.

7. Installations and activities will forward nominations through major subordinate commands to the AMC Field Safety Agency, except that installations and activities reporting directly to AMC, Headquarters, will forward nominations direct to AMC Field Safety Agency.

   Reference: Paragraph 4a, AMCR 385-10

8. At least once a week

   Reference: Paragraph 923, ORDM 7-224

9. Not less than 13 feet.

   Reference: Paragraph 2102f, ORDM 7-224

10. Two

    Reference: Paragraph 2714a, ORDM 7-224

EDITORS NOTE: Looks like we goofed and "did not know" the correct answer to question 2 of the January 1963 Safety Digest. The cleaning compound referred to in paragraph 2, TB 9-268 is somewhat flammable. However 1,1,1, - Trichloroethane, Technical, Federal Specification O-T-620, is a non-flammable solvent. (Thanks to MICOM, for catching this one).

HEADQUARTERS
UNITED STATES ARMY MATERIEL COMMAND
WASHINGTON 25, D. C.

September 1963

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(AMCAD-S)

S. D. SMITH, JR.
Major General, U. S. Army
Chief of Staff

OFFICIAL:

R. O. DAVIDSON
Colonel, GS
Chief, Administrative Office

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